Use Attainability Analysis

for

WBID 1265 East Creek

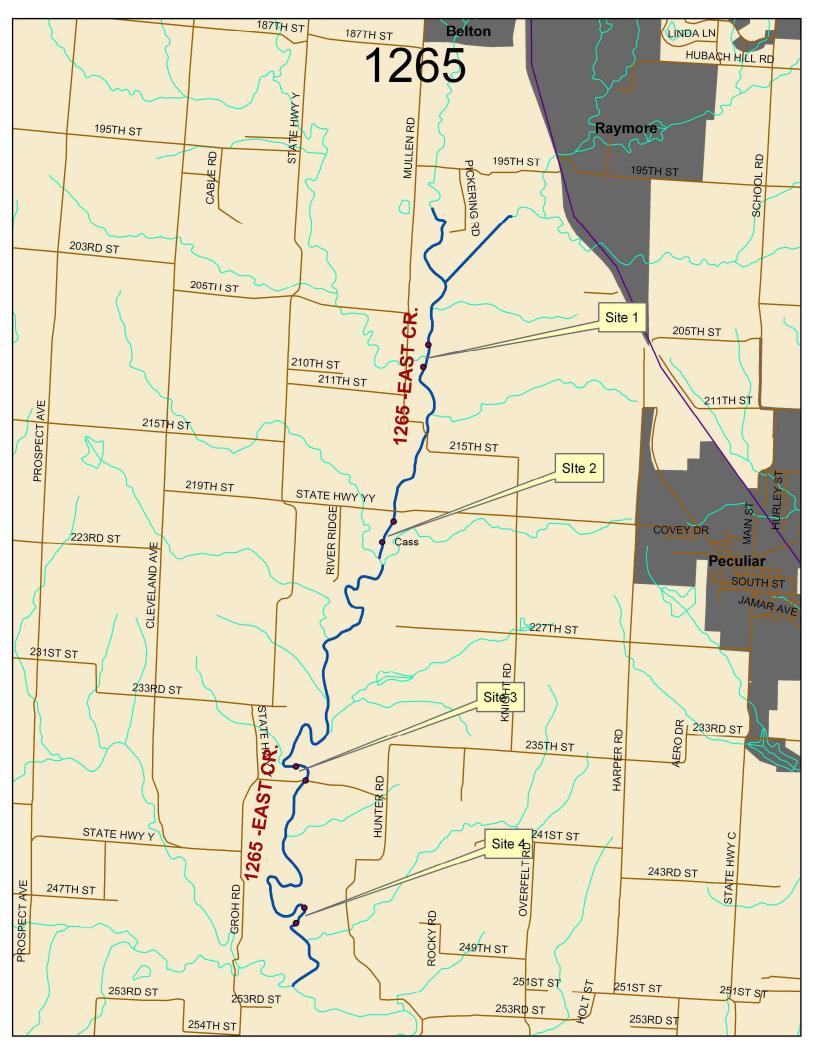
Submitted by SES Inc.

to Missouri Department of Natural Resources Water Protection Program

Date received: November 14, 2007

# Data Sheet A - Water Body Identification

I. Water Body Information (For water body being	ng surveyed	)
Water Body Name (from USGS 7.5' quad):		
East Creek		
Missouri Water Body Identification (WBID) Number:		
1265		
8 digit HUC code:	County:	
10290108	Cass	
Upstream Legal Description (from Table H):		
T46N R32W Sec 31		
Downstream Legal Description (from Table H):		
T44N R33W Sec 2		
Number of sites evaluated:		
4		
List all site numbers, listed consequently upstream to d	ownstream:	
1,2,3,4		
Site Locations Map(s): Attach a map of the entire seg	ment with as	ssessment sites clearly labeled.
Mark any other items that may be of interest.		
II. Facility Information (list all permitted discharges to	the water bo	ody segment)
Facility Name(s) and Permit Number(s):		
Pickering Place, Inc. WWTF		
MO 0102300		
		_
III. UAA Surveyor (please print legibly)		<del></del>
Name of Surveyor:	•	e Number:
Aaron Ball	(913)307-	-0046
Organization/Employer:		
SES, Inc.		
Plant of the control		La calla de la casa de
Please verify that you have completed all sections,	cnecked all	applicable boxes, and that the form is
complete.		
Oimada Assau Ball	D-4:	44.00.07
Signed: Aaron Ball	Date:	11.09.07



WBID#	1265
Site #	1

Date & Time:		10/24/07	11:20	Site Location Description (e.g. road crossing):						
Personnel:		Aaron Ball, Drew D	odson		Land Owner Access					
Current Weat	her Con	ditions: clear		Facility Nar	me:	Pickering Pla	ce, Inc. WWTF			
Weather cond	litions fo	or the past 10 days:	2.85 inches	Permit Num	nber:	MO 0102300				
Drought cond	itions?: I	No drought ☑ ; Pha	se I □ ; Phase	II □ ; Phas	e III □ ; PI	nase IV □ ; Ur	nknown 🗆			
Site Location	n:									
		(Universal Transver	se Mercator Pr	rojection, In	Meters					
Site 01	Easting	g (UTM X):	Northing (UTN	И Y):		Horizontal Ac	Meters			
	036858	38	4289809			4.5				
Site 11	Easting	g (UTM X):	Northing (UTN	И Y):		Horizontal Accuracy:		Meters		
	036851	 18	4289500					7.8		
			1							
Photos:				_		T	T			
Photo ID#	ı	Photo Purpose	Photo ID#:	Photo Purpose		Photo ID#:	Photo Purpose			
10	Upstrea	am	11	Downstream						
Photo ID#	F	Photo Purpose	Photo ID#	Photo Purpose		Photo ID#	Photo Purpo	se		
Photo ID#	F	Photo Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo Purpose			
Uses Observ	ed:									
☐ Swimming	J	☐ Skin diving	☐ SCUBA di	iving	☐ Tubin	g	☐ Water Skiing			
☐ Wind surfi	ng	☐ Kayaking	□ Boating		□ Wadir	ng	□ Rafting			
☐ Hunting		☐ Trapping	□ Fishing		✓ None	of the above	☐ Other:			
Describe:			<u>.                                      </u>		•		•			

WBID#	1265				
Site #	1				

Surrounding Conditions:  □ City/County parks □ playgrounds □ MDC conservation lands □ Urban areas □ Rural Residential □ Campgrounds □ State parks □ National Forests □ Nature trails □ Stairs/walkways □ Steep Slopes □ Other:  Comments:  none    Steep Slopes □ Other:   Camping Sites □ Rope swings □ RV/ATV Tracks □ Fire pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock watering comments/other:    Substrate:   Square   S				(	,		
□ City/County parks         □ playgrounds         □ MDC conservation lands         □ Urban areas         ☑ Rural Residential           □ Campgrounds         □ State parks         □ National Forests         □ Nature trails         □ Stairs/walkways           □ Boating accesses         ☑ Fence         □ No tresspass sign         □ Steep Slopes         □ Other:           Comments:           □ Roads         □ Foot path/prints         □ Dock/platform         □ Camping Sites         □ Rope swings           □ RV/ATV Tracks         □ Fire pit/ring         □ NPDES Discharge         □ Fishing Tackle         □ Livestock watering           comments/other:           None           Substrate:           % Cobble         % Gravel road         % Sand road         % Sitt         % Mud/Clay road         % Bedrock road           % Cobble         % Gravel road         % Sand road         % Sitt road         % Mud/Clay road         % Bedrock road           % Cobble         % Gravel road         % Sand road         % Sitt road         % Mud/Clay road         % Bedrock road           Aquatic Vegatation:           none         □ Musky         □ Chemical         ☑ None         □ Other:           Odor:         □ Clear         □ Green <th>C</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	C						
□ Campgrounds □ State parks □ Not tresspass sign □ Steep Slopes □ Other:   Comments: none □ Not tresspass sign □ Steep Slopes □ Other:   Evidence of Human Use: □ Roads □ Roads □ Roye path/prints □ Fire pit/ring □ Dock/platform □ NPDES Discharge □ Camping Sites □ Fishing Tackle □ Rope swings □ Livestock watering □ Livestock watering   □ RV/ATV Tracks □ Roye pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock watering   comments/other: none    Substrate:  % Cobble  % Gravel 70  **Sand % Silt **Mud/Clay **M			T= 1400 (*	, , [=			
□ Boating accesses □ Fence □ No tresspass sign □ Steep Slopes □ Other:  Comments:     none    Steep Slopes □ Other: □ Comments:     none    Steep Slopes □ Other: □ Comments:		1 70					
Evidence of Human Use:  □ Roads □ Foot path/prints □ Dock/platform □ Camping Sites □ Rope swings □ RV/ATV Tracks □ Fire pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock watering comments/other:  Substrate: % Cobble % Gravel % Sand % Silt % Mud/Clay % Bedrock 70 30  Aquatic Vegatation: none  Water Characteristics: □ Clear □ Green □ Gray □ Milky □ Other:		· ·					ılkways
Evidence of Human Use:  Roads   Foot path/prints   Dock/platform   Camping Sites   Rope swings   RV/ATV Tracks   Fire pit/ring   NPDES Discharge   Fishing Tackle   Livestock watering comments/other: none  Substrate: % Cobble   Gravel   Sand   Silt   Mud/Clay   Bedrock 70   30    Aquatic Vegatation: none  Water Characteristics: Odor:   Sewage   Musky   Chemical   None   Other: Color:   Green   Gray   Milky   Other: Murky   Bottom Deposit:   Sludge   Solids   Fine sediments   None   Other: Murky   Bottom Deposit:   Sludge   Solids   Fine sediments   None   Other:	□ Boating accesses	☑ Fence	☐ No tresspass sig	n 🗆	J Steep Slopes	☐ Other:	
Evidence of Human Use:  Roads							
□ Roads □ Foot path/prints □ Dock/platform □ Camping Sites □ Rope swings   □ RV/ATV Tracks □ Fire pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock watering   Substrate:   % Cobble % Gravel 70 % Sand 8 Silt % Mud/Clay 30 % Bedrock   Aquatic Vegatation:   none Water Characteristics:   Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other:   Color: □ Clear □ Green □ Gray □ Milky ☑ Other:   Murky Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:	none						
□ Roads □ Foot path/prints □ Dock/platform □ Camping Sites □ Rope swings   □ RV/ATV Tracks □ Fire pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock watering   Substrate:   % Cobble % Gravel 70 % Sand 8 Silt % Mud/Clay 30 % Bedrock   Aquatic Vegatation:   none Water Characteristics:   Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other:   Color: □ Clear □ Green □ Gray □ Milky ☑ Other:   Murky Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:							
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□ Roads □ Foot path/prints □ Dock/platform □ Camping Sites □ Rope swings   □ RV/ATV Tracks □ Fire pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock watering   Substrate:   % Cobble % Gravel 70 % Sand 8 Silt % Mud/Clay 30 % Bedrock   Aquatic Vegatation:   none Water Characteristics:   Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other:   Color: □ Clear □ Green □ Gray □ Milky ☑ Other:   Murky Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:							
□ RV/ATV Tracks □ Fire pit/ring □ NPDES Discharge □ Fishing Tackle □ Livestock watering comments/other:  Substrate:  % Cobble % Gravel % Sand % Silt % Mud/Clay % Bedrock 70 30  Aquatic Vegatation:  none  Water Characteristics:  Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other: Color: □ Clear □ Green □ Gray □ Milky ☑ Other:							
Substrate:  % Cobble % Gravel % Sand % Silt % Mud/Clay % Bedrock 70 30  Aquatic Vegatation: none  Water Characteristics:  Odor: Sewage Musky Chemical None Other: Color: Green Gray Milky Other: Murky Bottom Deposit: Sludge Solids Fine sediments None Other:							
Substrate: % Cobble % Gravel % Sand % Silt % Mud/Clay % Bedrock 70  Aquatic Vegatation:  none  Water Characteristics:  Odor: Sewage Musky Chemical Mone Other: Color: Glear Green Gray Milky Other: Murky Bottom Deposit: Sludge Solids Fine sediments Mone Other:	☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharg	e   [	Fishing Tackle	☐ Livestock	< watering
Water Characteristics:   Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other:   Color: □ Clear □ Green □ Gray □ Milky ☑ Other:   Murky   Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:	comments/other:	none					
Water Characteristics:   Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other:   Color: □ Clear □ Green □ Gray □ Milky ☑ Other:   Murky   Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:							
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70         30           Aquatic Vegatation:           none           Water Characteristics:           Odor:         □ Sewage         □ Musky         □ Chemical         ☑ None         □ Other:           Color:         □ Clear         □ Green         □ Gray         □ Milky         ☑ Other:           Murky           Bottom Deposit:         □ Sludge         □ Solids         □ Fine sediments         ☑ None         □ Other:							
Aquatic Vegatation:  none  Water Characteristics:  Odor: Sewage Musky Chemical Mone Other:  Color: Gray Milky Other:  Murky  Bottom Deposit: Sludge Solids Fine sediments Mone Other:	% Cobble		% Sand	% Silt			6 Bedrock
Water Characteristics:  Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other:  Color: □ Clear □ Green □ Gray □ Milky ☑ Other:  Murky  Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:		70			30		
Water Characteristics:  Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other:  Color: □ Clear □ Green □ Gray □ Milky ☑ Other:  Murky  Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:							
Water Characteristics:   Odor: □ Sewage □ Musky □ Chemical ☑ None □ Other:   Color: □ Clear □ Gray □ Milky ☑ Other:   Murky   Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:	Aquatic Vegatation:						
Odor:       □ Sewage       □ Musky       □ Chemical       ☑ None       □ Other:         Color:       □ Clear       □ Green       □ Gray       □ Milky       ☑ Other:         Murky         Bottom Deposit:       □ Sludge       □ Solids       □ Fine sediments       ☑ None       □ Other:	none						
Odor:       □ Sewage       □ Musky       □ Chemical       ☑ None       □ Other:         Color:       □ Clear       □ Green       □ Gray       □ Milky       ☑ Other:         Murky         Bottom Deposit:       □ Sludge       □ Solids       □ Fine sediments       ☑ None       □ Other:							
Odor:       □ Sewage       □ Musky       □ Chemical       ☑ None       □ Other:         Color:       □ Clear       □ Green       □ Gray       □ Milky       ☑ Other:         Murky         Bottom Deposit:       □ Sludge       □ Solids       □ Fine sediments       ☑ None       □ Other:							
Odor:       □ Sewage       □ Musky       □ Chemical       ☑ None       □ Other:         Color:       □ Clear       □ Green       □ Gray       □ Milky       ☑ Other:         Murky         Bottom Deposit:       □ Sludge       □ Solids       □ Fine sediments       ☑ None       □ Other:							
Odor:       □ Sewage       □ Musky       □ Chemical       ☑ None       □ Other:         Color:       □ Clear       □ Green       □ Gray       □ Milky       ☑ Other:         Murky         Bottom Deposit:       □ Sludge       □ Solids       □ Fine sediments       ☑ None       □ Other:							
Odor:       □ Sewage       □ Musky       □ Chemical       ☑ None       □ Other:         Color:       □ Clear       □ Green       □ Gray       □ Milky       ☑ Other:         Murky         Bottom Deposit:       □ Sludge       □ Solids       □ Fine sediments       ☑ None       □ Other:	Water Characteristics	s:					
Color: □ Clear □ Green □ Gray □ Milky ☑ Other:   Murky   Bottom Deposit: □ Sludge □ Solids □ Fine sediments ☑ None □ Other:			□ Muskv	☐ Chemica	al ☑ N	Vone [	☐ Other:
Murky Bottom Deposit: ☐ Sludge ☐ Solids ☐ Fine sediments ☑ None ☐ Other:			<u> </u>				
Bottom Deposit: ☐ Sludge ☐ Solids ☐ Fine sediments ☐ None ☐ Other:	00.01.						
· · · · · · · · · · · · · · · · · · ·	Bottom Deposit:	□ Sludae	□ Solids	□ Fine sec	liments 🔽 N		
	Surface Deposit:						

Organization: SES, Inc.

## Field Data Sheets for Recreational Use Stream Surveys

## **Data Sheet B - Site Characterization (continued)**

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support rec
--

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
	,				
mments: (Please red	cord any additional comments	here )			
ne	sord arry additional comments	nere.)			
	u have completed all s	ections, checke	d all applicable	boxes, and that the	form is
ease verify that yo omplete.	u have completed all s	ections, checke	d all applicable	boxes, and that the	form is

																		Disso	lved Ox	rygen		
	Waterbo	ody ID:	1265			Site #:	1									Date:	10/24/07	,		Time:	11:20	
	Estimate	ed Chanr	nel Incisi	on:	2.0	(m) (hei	ght betw	een low b	ank wid	th and wa	ater)						issolved (			11	(mg/L)	
						-		izontal Ac	-		,							'				
		UTM X UTM X		0368588 0368518			UTM Y: UTM Y:		4289809			+/-	4.5 7.8	(meters)	•	Dı	ssolved (	)xygen:			(% sat)	
	A	Ctussus								ength of	Common C			150	(matama)		Specifi	c Cond:			(µS/cm)	
			mgth of I				/	(meters)		20x avera	-	_		130	(meters)	Wa	ter Temp	erature:		10.4	(°C)	
	Fiel	ld Staff:				Aaron E	Ball. Drev	v Dodson														
							,			T	4.0	C	4.									
										1 ra	nsect C	ross-Se	ction									
	Distance	1	0 Distance	2	0 Distance	3	Distance	)4	Distance	)5 	Distance	6 I	Distance	07	90	3	Distance	9	1 Distance	0	Distance	1
Station	(m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)		Depth (m)	(m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)	Distance (m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)		Depth (m)
eft Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.5	0.05	0.7	0.30	1.0	0.30	0.7	0.15	0.7	0.15	1.1	0.45	1.2	1.00	1.6	0.40	0.8	0.20	1.0	0.30	1.1	0.45
2	1.0	0.10	1.4	0.30	2.0	0.40	1.4	0.30	1.4	0.20	2.2	0.65	2.4	1.00	3.2	0.50	1.6	0.30	2.0	0.35	2.2	0.60
3	1.5	0.10	2.1	0.25	3.0	0.40	2.1	0.30	2.1	0.30	3.3	0.70	3.6	1.00	4.8	0.45	2.4	0.55	3.0	0.40	3.3	0.65
4	2.0	0.10	2.8	0.20	4.0	0.40	2.8	0.40	2.8	0.30	4.4	0.65	4.8	1.00	6.4	0.60	3.2	0.70	4.0	0.50	4.4	0.75
5	2.5	0.10	3.5	0.10	5.0	0.40	3.5	0.50	3.5	0.40	5.5	0.50	6.0	1.00	8.0	0.90	4.0	0.90	5.0	0.50	5.5	0.90
6	3.0	0.10	4.2	0.10	6.0	0.40	4.2	0.40	4.2	0.40	6.6	0.30	7.2	1.00	9.6	0.70	4.8	1.00	6.0	0.55	6.6	0.85
7	3.5	0.05	4.9	0.10	7.0	0.40	4.9	0.35	4.9	0.40	7.7	0.25	8.4	1.00	11.2	0.60	5.6	1.00	7.0	0.80	7.7	0.75
8	4.0	0.10	5.6	0.05	8.0	0.45	5.6	0.30	5.6	0.30	8.8	0.30	9.6	1.00	12.8	0.80	6.4	0.85	8.0	0.90	8.8	0.80
9	4.5	0.10	6.3	0.05	9.0	0.40	6.3	0.10	6.3	0.20	9.9	0.30	10.8	1.00	14.4	0.75	7.2	0.40	9.0	0.75	9.9	0.60
ight Bank	5.0	0.00	7.0	0.00	10.0	0.00	7.0	0.00	7.0	0.00	11.0	0.00	12.0	0.00	16.0	0.00	8.0	0.00	10.0	0.00	11.0	0.00
eature Type	rif	fle	no	ool	ро	vo1	n	ool	n/	ool	n	ool	,	ool	po	<b>a</b> 1	ро	ol	ро	ol.	ро	ol.
ffle, run, or pool	111	110	рc	JOI	ρü	101	L P	JUI	ρt	JUI	ρc	<i>1</i> 01	Р	UUI	l po	JI	ρo	UI	ρο	UI	ро	UI

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

Signed: Aaron Ball Date: 11.09.07
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WBID#	1265
Site #	2

Date & Time:		10/24/07	12:19	Site Location	on Descrip	tion (e.g. road	crossing):			
Personnel:		Aaron Ball, Drew D	odson		Land Owner Access					
Current Weath	ner Cond	ditions: clear		Facility Nar	me:	Pickering Pla	ce Inc. WWTF			
Weather cond	itions fo	r the past 10 days:	2.85 inches	Permit Nun	nber:	MO 0102300				
Drought condi	tions?: N	No drought ☑ ; Pha	se I □ ; Phase	II □ ; Phas	e III □ ; Pl	hase IV □ ; Ur	nknown 🗆			
Site Location	1:									
		(Universal Transver	se Mercator Pr	rojection, In	Meters					
Site 01	Easting	ı (UTM X):	Northing (UTM Y):			Horizontal Ac	ccuracy:	Meters		
	036811	3	4287378	4287378				5.4		
Site 11	Easting	ı (UTM X):	Northing (UTM Y):			Horizontal Ac	ccuracy:	Meters		
	036795		4287092			5.1				
	000,00		1207 002					0		
Photos:	ı		1	<del>1</del>		1	т			
Photo ID#	F	Photo Purpose	Photo ID#:	Photo Purpose		Photo ID#:	Photo Purp	ose		
12	Downst	tream	13	Upstream						
Photo ID#	P	Photo Purpose	Photo ID#	Photo F	Purpose	Photo ID# Photo I		ose		
Photo ID#	P	Photo Purpose	Photo ID#	Photo F	Purpose	Photo ID#	Photo Purpose			
				<u></u>						
Uses Observ	ed:									
☐ Swimming	l	☐ Skin diving	iving	☐ Tubin	g	☐ Water Skiing				
☐ Wind surfi	ng	☐ Kayaking	□ Boating		□ Wadir	ng	□ Rafting			
☐ Hunting		☐ Trapping	☐ Fishing		✓ None	of the above	☐ Other:			
Describe:			<u>.                                      </u>				1			

WBID#	1265			
Site #	2			

Surrounding Condi	tions:					
☐ City/County parks	s □ playgrounds	☐ MDC conse	ervation lands	☐ Urban areas	☑ Rural Residence	dential
☐ Campgrounds	☐ State parks	☐ National Fo	prests	□ Nature trails	☐ Stairs/walk	ways
□ Boating accesses	S □ Fence	☐ No tresspas	ss sign	☐ Steep Slopes	☐ Other:	
Comments:						
Evidence of Human	ı llen:					
□ Roads	☐ Foot path/prints	☐ Dock/platfor	rm	☐ Camping Sites	☐ Rope swin	30
☐ RV/ATV Tracks	☐ Foot path/prints	☐ NPDES Dis		☐ Fishing Tackle	☐ Livestock v	
comments/other:	Path down to creek		charge	LI ISINING FACINIC	LIVESTOCK .	Valering
Comments/outer.	1 au aowii to o.cc					
-						
Substrate:						
% Cobble	% Gravel	% Sand	% Silt	% Mud/	Clay % I	Bedrock
50	50					
Aquatic Vegatation:	<u>:</u>					
none						
Water Characteristi	ioo					
Odor:	□ Sewage	☐ Musky	☐ Chemic	ical 🗸	None	Other:
Color:	☐ Sewage	□Green	☐ Gray			Other:
Coloi.	LI CIGAI	ПОІССІІ	L Clay		•	ırky
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine se	ediments 🗸		Other:
Surface Deposit:	□ Oil	☐ Scum	☐ Foam			Other:

Organization: SES, Inc.

## Field Data Sheets for Recreational Use Stream Surveys

# **Data Sheet B - Site Characterization (continued)**

Additional official Morphology. Decom isolated book of other regimes inclinical annion file survey that thay subbolt recreational use	<b>ional Stream Morphology:</b> (Record isolated pools or other features identified during the survey that may	v support recreational uses
---	--	-----------------------------

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
	accool location (III)				
Comments: (Please red none	cord any additional comments I	here.)			
ione					
Please verify that yo complete.	u have completed all s	ections, checke	d all applicable	boxes, and that the	form is
ompioto.					
Surveyor's Signature:	Aaron Ball		Date of Survey:	10/24/2007	
, ,					

																		Disso	lved Ox	xygen		
	Waterbo	ody ID:	1265			Site #:	2									Date:	10/24/07	7		Time:	12:25	
	Estimate	ed Chanr	nel Incisi	on:	2.0	(m) (hei	ght betw	een low b	ank widt	th and wa	iter)					Di	issolved	Oxygen:		10.3	(mg/L)	
	01	UTM X	:	0368113	3			izontal Ac				DOP / FO +/- +/-	5.4	(meters)		Dissolved Oxygen:(% sat)						
		UTM X		0367956		•			4287092	2		+/-	5.1	(meters)			Specif	ic Cond:			(μS/cm)	
		e Stream ermne Le		Reach)			7	(meters)		ength of Ox avera				150	(meters)	Wa	ıter Temp	perature:		12.2	(°C)	
	Fiel	ld Staff:			Aaron Ball, Drew Dodson																	
										Tra	nsect C	ross-Se	ction									
	0	)1	0	)2	0	3	(	)4	0	5	0	6	(	07	08	8	0	9	1	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
eft Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.2	0.05	0.9	0.05	0.6	0.15	1.1	0.10	0.7	0.05	0.9	0.40	0.8	0.45	0.3	0.05	0.3	0.10	1.1	0.10	1.0	0.30
2	0.4	0.15	1.8	0.10	1.2	0.40	2.2	0.05	1.4	0.10	1.8	0.75	1.6	0.50	0.6	0.10	0.6	0.10	2.2	0.20	2.0	0.60
3	0.6	0.25	2.7	0.30	1.8	0.50	3.3	0.05	2.1	0.20	2.7	0.70	2.4	0.15	0.9	0.20	0.9	0.20	3.3	0.05	3.0	0.70
4	0.8	0.40	3.6	0.50	2.4	0.75	4.4	0.30	2.8	0.20	3.6	0.60	3.2	0.20	1.2	0.25	1.2	0.25	4.4	0.05	4.0	0.55
5	1.0	0.55	4.5	0.70	3.0	0.80	5.5	0.40	3.5	0.20	4.5	0.60	4.0	0.30	1.5	0.20	1.5	0.30	5.5	0.20	5.0	0.40
6	1.2	0.55	5.4	0.90	3.6	0.95	6.6	0.55	4.2	0.30	5.4	0.65	4.8	0.40	1.8	0.20	1.8	0.30	6.6	0.20	6.0	0.35
7	1.4	0.55	6.3	0.95	4.2	0.70	7.7	0.55	4.9	0.20	6.3	0.70	5.6	0.90	2.1	0.20	2.1	0.30	7.7	0.20	7.0	0.30
8	1.6	0.50	7.2	1.00	4.8	0.30	8.8	0.50	5.6	0.05	7.2	0.75	6.4	1.00	2.4	0.20	2.4	0.25	8.8	0.20	8.0	0.25
9	1.8	0.50	8.1	0.80	5.4	0.15	9.9	0.40	6.3	0.10	8.1	0.20	7.2	1.00	2.7	0.15	2.7	0.10	9.9	0.15	9.0	0.20
ight Bank	2.0	0.00	9.0	0.00	6.0	0.00	11.0	0.00	7.0	0.00	9.0	0.00	8.0	0.00	3.0	0.00	3.0	0.00	11.0	0.00	10.0	0.00
eature Type ffle, run, or poo	ı rı	un	рс	ool	рс	ool	р	ool	po	ool	рс	ool	р	ool	rif	fle	rif	fle	ро	ool	po	ol

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

Signed: Aaron Ball Date: 11.09.07
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WBID#	1265
Site #	3

		_		,								
Date & Time:		10/24/07	15:50	Site Location	on Descrip	tion (e.g. road	crossing):					
Personnel:		Aaron Ball, Drew D	)odson	ļ	239th St.							
Current Weath	ner Cond	ditions: clear		Facility Nar	me:	Pickering Place, Inc. WWTF						
Weather cond	litions fo	r the past 10 days:	2.85 inches	Permit Nun	nber:	MO 0102300						
Drought condi	itions?: N	No drought ☑ ; Pha	se I □ ; Phase	· II □ ; Phas	e III □ ; P	hase IV □ ; Ur	nknown □					
Site Location												
Location Coor	dinates	(Universal Transver	rse Mercator Pr	rojection, In	Meters							
Site 01	Easting	g (UTM X):	Northing (UTN	И Y):		Horizontal Ac	ccuracy: Mete					
	036677	'1	4284010					6.9				
Site 11	Easting	ı (UTM X):	Northing (UTN	И <u>Y</u> ):		Horizontal Ac	ccuracy:	Meters				
	036690	 )5	4283821					8.7				
		; <u>~</u>	1									
Photos:	T		T	Τ		Γ	1					
Photo ID#	F	Photo Purpose	Photo ID#:	Photo F	Purpose	Photo ID#:	Photo Pu	rpose				
16	Downto	own	17	Upstream								
Photo ID#	P	Photo Purpose	Photo ID#	Photo ID# Photo F		Photo ID#	Photo Purpose					
	_					Photo ID#						
Photo ID#	P	Photo Purpose	Photo ID#	Photo F	Photo Purpose		Photo Pu	rpose				
				<u> </u>								
Uses Observ	ed:	_										
☐ Swimming	J	☐ Skin diving	☐ SCUBA di	iving	☐ Tubin	g	☐ Water Skiin	g				
☐ Wind surfi	ng	☐ Kayaking	☐ Boating		□ Wadir	ng	☐ Rafting					
☐ Hunting		☐ Trapping	□ Fishing		✓ None	of the above	☐ Other:					
Describe:												

WBID#	1265
Site #	3

0						
Surrounding Condition  ☐ City/County parks	ions: □ playgrounds	☐ MDC conserv	etion lands	☐ Urban areas	☑ Rural R	esidential
☐ Campgrounds	☐ State parks	□ National Fore		☐ Nature trails	☐ Stairs/v	
	☐ State parks				☐ Other:	Vaikways
☐ Boating accesses	LI Ferice	☐ No tresspass	sign	☐ Steep Slopes	U Other.	
Comments:						
none						
Evidence of Human l	Use:					
□ Roads	☐ Foot path/prints	☐ Dock/platform		☐ Camping Sites	s ☑ Rope s	wings
☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discha				ck watering
comments/other:		1				<u>-</u>
none						
i						
i						
<u> </u>						
Substrate:						
% Cobble	% Gravel	% Sand	% Silt	% Mud/	/Clay	% Bedrock
	40	, , , , , , , , , , , , , , , , , , , ,		60	•	/ <del>* -</del> -
Aquatic Vegatation:						
none						
110.10						
i						
i						
<u> </u>						
Water Characteristics	;s:					
Odor:	☐ Sewage	□ Musky	□ Chemi	ical 🔣	None	☐ Other:
Color:	☐ Clear	□Green	☐ Gray		Milky	Other:
			-		<u> </u>	Murky
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine s	sediments 🗹	None	☐ Other:
Surface Deposit:	□ Oil	☐ Scum	☐ Foam		None	☐ Other:

Organization: SES, Inc.

## Field Data Sheets for Recreational Use Stream Surveys

# **Data Sheet B - Site Characterization (continued)**

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational use	Additional Stream	ı Morphology:	(Record isolated pools or	other features identified during	the survey that may	support recreational uses
---	-------------------	---------------	---------------------------	----------------------------------	---------------------	---------------------------

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
	cord any additional comments I	nere.)			
one					
Please verify that yo	ou have completed all s	ections, checke	d all applicable	boxes, and that the f	form is
Surveyor's Signature:	Aaron Ball		_Date of Survey:	10/24/2007	

																		Disso	lved Ox	ygen		
	Waterbo	ody ID:	1265			Site #:	3									Date:	10/24/07	,		Time:	15:52	
	Estimate	ed Chanr	nel Incisi	on:	4.0	(m) (hei	ght betw	een low b	ank wid	th and wa	ater)					Di	ssolved (	Oxygen:		10.1	(mg/L)	
	01	UTM X	:	UTM X) 0366771		1	UTM Y:		4284010	0	(EPE / P	DOP / F0 +/-	OM) 6.9	(meters)		Dissolved Oxygen: (% sat)						
	11	UTM X	:	0366905	5		UTM Y:		428382	1	•	+/-	8.7	(meters)			Specifi	c Cond:			(uS/cm)	
			Width: ength of I				7	(meters)		ength of 20x avera	-	-		150	(meters)	Wa	ter Temp	•				
			_			A aran D	Dall Dray	v Dodson	Ì	ox avera	ge streut	ii widdii)				****	ter remp	cruture.		12.0	( 0)	
	1.10	iu staii.				Aaron E	oan, Diev	v Dousoii		Two	maaat C	ross-Se	ation.	-								
								2.4						0.5	0.0		0.4			0		
	Distance	1	Distance	2	Distance	3	Distance	04	Distance	5	Distance	6	Distance	07 	08		Distance		1 Distance		Distance	
Station  Left Bank	(m) 0	Depth (m)	(m) 0	Depth (m)	(m) 0	Depth (m)	(m) 0	Depth (m)	(m) 0	Depth (m)	(m)	Depth (m)	(m) 0	Depth (m)	Distance (m)	Depth (m)	(m) 0	Depth (m)	(m) 0	Depth (m)	(m) 0	Depth (m)
eit Dalik	0.6	· ·	0.8		0.8	-		0.30		-						-	0.8	0.30	0.6	0.30		0.45
2	1.2				1.6			0.35									1.6	0.30	1.2	0.30		0.45
3	1.8	1.00	2.4		2.4			0.55	2.4					0.70	1.8	0.50	2.4	0.25	1.8	0.30	2.1	0.40
4	2.4	1.00	3.2	1.00	3.2	1.00	2.8	0.65	3.2	0.50	2.0	0.85	2.0	0.85	2.4	0.75	3.2	0.30	2.4	0.30	2.8	0.40
5	3.0	1.00	4.0			1.00	3.5	1.00	4.0	0.80	2.5	0.90	2.5	0.80	3.0	0.90	4.0	0.45	3.0	0.30	3.5	0.40
6	3.6							1.00									4.8	0.50	3.6	0.40		0.60
7 9	4.2		5.6 6.4		5.6 6.4												5.6 6.4	0.60	4.2	0.50	4.9 5.6	0.70
9	5.4		7.2					0.70									7.2	0.60	5.4			0.50
ight Bank	6.0	0.00	8.0	0.00	8.0	0.00	7.0	0.00	8.0	0.00	5.0	0.00	5.0	0.00	6.0	0.00	8.0	0.00	6.0	0.00	7.0	0.00
eature Type																						
ffle, run, or poo	pc	ool	pc	ool	pc	ool	p	ool	po	ool	po	ool	p	ool	po	ol	po	ol	po	ol	po	ol

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

Signed: Aaron Ball Date: 11.09.07
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WBID#	1265
Site #	4

				_							
Date & Time:		10/24/07	14:45	Site Location Description (e.g. road crossing):							
Personnel:		Aaron Ball, Drew D	odson		Farmer's Access off Hunter Rd.						
Current Weath	ner Cond	ditions: clear		Facility Nar	me:	Pickering Pla	ce, Inc. WWTF				
Weather cond	litions fo	r the past 10 days:	2.85 inches	Permit Num	nber:	MO 0102300					
Drought conditions?: No drought ☑ ; Phase I □ ; Phase II □ ; Phase					e III □ ; PI	nase IV □ ; Ur	nknown 🗆				
Site Location	1!										
Location Coor	dinates	(Universal Transver	se Mercator Pr	rojection, In	Meters						
Site 01	Easting	ı (UTM X):	Northing (UTN	И Y):		Horizontal Accuracy:					
	036688	 35	4282071	_	_	10.2					
Site 11	Easting	ı (UTM X):	Northing (UTN	<b>М Y)</b> :		Horizontal Ac	curacy:	Meters			
	036677		4281859					8.3			
	030011	_!	7201000					0.0			
Photos:				<del>,                                      </del>			1				
Photo ID#	Photo Purpose		Photo ID#:	Photo F	Purpose	Photo ID#:	Photo Purpose				
14	Downst	tream	15	Upstream							
Photo ID#	Photo Purpose		Photo ID#	Photo F	Purpose	Photo ID#	Photo Pu	ırpose			
Photo ID#	Photo Purpose		Photo ID#	Photo F	Purpose	Photo ID#	Photo Pu	urpose			
Uses Observ	ed:										
□ Swimming		☐ Skin diving	☐ SCUBA di	iving	☐ Tubin	g	□ Water Skiir	ng			
☐ Wind surfi		☐ Kayaking	□ Boating		□ Wadir		□ Rafting				
☐ Hunting		☐ Trapping	☐ Fishing			of the above	☐ Other:				
Describe:		ш паррыіз	1 1 10111119		E 1101.0	OI the above	□ Otilo1.				

WBID#	1265
Site #	4

Surrounding Conditi	ions:				
☐ City/County parks	☐ playgrounds	☐ MDC conservati	ion lands 🔲 Urbai	n areas 🛛	Rural Residential
☐ Campgrounds	☐ State parks	□ National Forests	s □ Nature	e trails	Stairs/walkways
☐ Boating accesses	✓ Fence	☐ No tresspass sig	gn □ Steep	Slopes □	Other:
Comments:					
none					
Evidence of Human	IIaa.				
		Designations	I Comr	' O'400   F	December and and
☐ Roads	☐ Foot path/prints	☐ Dock/platform			Rope swings
☐ RV/ATV Tracks	☐ Fire pit/ring	☐ NPDES Discharg	je  ⊔ Fisiiiii	ng Tackle □	Livestock watering
comments/other:	none				
<u> </u>					
Substrate:					
% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	y % Bedrock
,	20	70 33.13.	30	50	,
<b>Aquatic Vegatation:</b>					
none					
Water Characteristic					
Odor:	□ Sewage	☐ Musky	☐ Chemical	✓ Non	
Color:	☐ Clear	□Green	☐ Gray	☐ Milk	ky ☑ Other:
	LI CIEAI				
			Í		Murky
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	s ☑ Non	ne 🗆 Other:

Organization: SES, Inc.

## Field Data Sheets for Recreational Use Stream Surveys

## **Data Sheet B - Site Characterization (continued)**

Additional Stream M	lorphology: (Record isolate	ed pools or other featu	res identified during	the survey that may suppo	rt recreational uses)
Channel Feature	Distance from	Width (m)	Length (m)	Median Denth (m)	May Denth (m)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
Comments: (Please red	cord any additional comments I	here.)			
none	•	,			
Please verify that yo complete.	u have completed all s	ections, checke	d all applicable	boxes, and that the	form is
Surveyor's Signature:	Aaron Ball		Date of Survey:	10/24/2007	
- ,	<del></del>				

																		Disso	lved Ox	ygen		
	Waterbo	ody ID:	1265		i	Site #:	4		i							Date:	10/24/07	,		Time:	14:47	
	Estimate	ed Chann	nel Incisio	on:	4.0	(m) (hei	ght betw	een low b	ank widt	th and wa	ater)					•				•		
	GPS Lo	cation - I	Easting (1	UTM X)	, Northin	ıg (UTM	Y), Hor	izontal Ac	curacy I	Estimate	(EPE / Pl	DOP / FO	OM)			Di	3301704	JAYECII.		10.5	(mg/L)	
	01	UTM X	:	0366885	5	1	UTM Y:		428207	1	•	+/-		(meters)		Di	ssolved (	Oxygen:			(% sat)	
	11	UTM X	<u>.                                    </u>	0366771			UTM Y:		4281859	9	•	+/-	10.2	(meters)								
	Average	Stream	Width:				5	(meters)	L	ength of	Survey S	Segment:		150	(meters)		Specifi	c Cond:			(μS/cm)	
			ngth of F							20x avera						Wa	ter Temp	erature:		12.5	(°C)	
	Fiel	d Staff:				Aaron E	all, Drev	v Dodson						<u>.</u>								
										Tra	nsect C	ross-Se	ction									
	0	1	0	2	0	3		04	0	)5	0	16		07	08	1	09	9	10	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.5	0.30	0.4	0.25	0.5	0.40	0.5	0.35	0.4	0.25	0.5	0.40	0.5	0.30	0.4	0.15	0.3	0.05	0.3	0.05	0.4	0.15
2	1.0	0.40			1.0										0.8	0.30	0.6	0.20	0.6		0.8	0.30
3	1.5	0.50			1.5										1.2	0.50		0.35	0.9			0.35
4	2.0		1.6		2.0		2.0								1.6	0.50		0.40	1.2		1.6	0.40
5	2.5	0.60	2.0		2.5		2.5								2.0	0.45	1.5	0.45	1.5		2.0	
6	3.0				3.0		3.0								2.4	0.40		0.30	1.8			0.30
7	3.5	0.25	2.8		3.5										2.8	0.25	2.1	0.30	2.1	0.30		0.20
8	4.0	0.20			4.0										3.2	0.10		0.20	2.4	0.20		0.15
9	4.5	0.10			4.5										3.6	0.10		0.10	2.7			0.10
Right Bank		0.00	4.0	0.00	5.0	0.00	5.0	0.00	4.0	0.00	5.0	0.00	5.0	0.00	4.0	0.00	3.0	0.00	3.0	0.00	4.0	0.00
Feature Type										•							<u>'</u>		<u>'</u>			
riffle, run, or pool	pc	ol	po	ol	rı	ın	p	ool	po	ool	pc	ool	p	ool	poo	ol	ru	n	riff	le	po	ol

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

Signed. Aaron Bail Date. 11.09.07	Signed: Aaron Ball	Date: 11.09.07	
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# **WBID# 1265**



Site# 1 Photo ID# 10, Upstream



Site# 2 Photo ID# 12, Downstream



Site# 1 Photo ID# 11, Downstream



Site# 2 Photo ID# 13, Upstream

# **WBID# 1265**



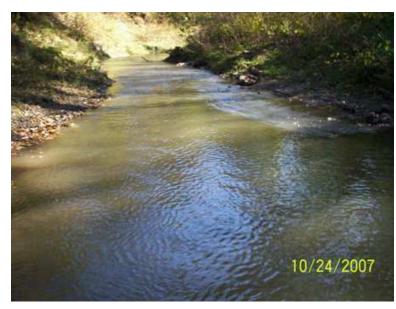
Site# 3 Photo ID# 16, Downstream



Site# 4 Photo ID# 14, Downstream



Site# 3 Photo ID# 17, Upstream



Site# 4 Photo ID# 15, Upstream